IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:	Confirmation No.: 5698
EHLICH *et al.*	Art Unit: 1633
Appl. No.: 10/594,177	Examiner: HIRIYANNA, Kelaginamane T.
Filed: August 13, 2007	Atty. Docket: 2590.0050002/EJH/PAC
For: **Secreted Proteins as Markers for Cell Differentiation**	

Reply to Unity of Invention Rejection

Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

Sir:

In reply to the Office Action dated June 23, 2010, requesting an election of one group of claims to prosecute in the above-referenced patent application, Applicants hereby provisionally elect to prosecute the claims of Group **I**, represented by claims 1-9, 11 and 12. This election is made without prejudice to or disclaimer of the other claims or inventions disclosed.

This election is made **with traverse**.

At page 4 of the Office Action, the Examiner contends that the inventions listed in the claims of Groups **I-XXIV** do not related to a single inventive concept under PCT Rule 13.1 because they lack the same or corresponding technical features as required under PCT Rule 13.2 In making this contention, the Examiner states that,

> These groups require the technical feature of 'monitoring cell differentiation with the expression of recombinant report gene,' this technical feature is not a special technical features as it does not make a contribution over the prior art for example in view of Geofrey et al; entire article anticipates claims 1, 2, 5-7, 10, 13, 14, 16, 17, 20, 32-36, and 49 claims . . . . Geofrey [d]iscloses a method for monitoring myoblast differentiation by transfecting with vectors that drive the expression of alpha-gal under the control of rabbit MHC promoter and the reporter gene alpha-gal is secreted in to the medium and can be [a]nalysed at different points during differentiation of myoblast into mature myotubes and thus anticipating the claims indicated.

Office Action at p. 4-5 (citations omitted). Applicants respectfully traverse these contentions.

U.S. Patent Publication No. 2003/0008836 to Goldspink ("Goldspink"), which is referred to as "Geofrey" in the Office Action, is directed to the use of a gene expression cassette "in gene therapy and vaccine production" and, in particular to "skeletal muscle transfected in vivo by intramuscular injection of plasmid DNA . . . as a potential source of secreted therapeutic proteins." Goldspink at Abstract and paragraph 5. Accordingly, the transgene alpha-galactosidase disclosed in Goldspink is used as a therapeutic protein and not for diagnostic purposes. See Goldspink, e.g., at paragraphs 23.

The experiments cited by the Examiner in paragraphs 53-57 of Goldspink provide further experimental data for use of the claimed protein as a therapeutic. The experiments describe the effect of muscle-specific regulatory elements on the expression level of a vector driving expression of alpha-galactosidase within the myogenic cell line C2C12. The tested constructs were either under the control of a CMV promoter alone, a muscle-specific myosin heavy chain promoter, or a CMV promoter combined with a muscle-specific light chain enhancer. The results showed that the vector with the CMV promoter and enhancer yielded greater expression of alpha-galactosidase than either the CMV promoter alone or the myosin heavy chain promoter alone. Thus, the experiments cited by the describe the effect of muscle-specific regulatory elements on the expression level of a vector driving expression of alpha-galactosidase, and **not**, as the Examiner contends, to monitoring myoblast differentiation.

Furthermore, the experiments referred to do not analyze different points during differentiation of myoblasts into myotubes. In paragraphs 57 and 58 dealing with secretion of

alpha-galactosidase into the culture medium, transient expression of the transgene was analyzed at forty-eight hours only "in order to confirm that the alpha-gal expressed and secreted *in vitro* has undergone correct post-translational processing." (paragraph 58). Additionally, the claimed method requires measurement of enzymatic activity within a body fluid or a cell culture medium. However, in Goldspink, enzymatic activity is measured in cell extracts. Thus, the experiments regarding secretion of alpha-galactosidase confirm proper expression and processing of the transgene, and furthermore its uptake by deficient fibroblasts, and in no way deal with a method of monitoring cell differentiation.

Under PCT Rule 13.2, an alleged group of inventions claimed in a single application fulfill the unity of invention requirement of PCT Rule 13.1 when they share one or more of the same or corresponding special technical features. The phase "special technical feature," refers to "those technical features that define a contribution which each of the claimed inventions, considered as a whole, makes over the prior art." PCT Rule 13.2 Applicants respectfully assert that at least the claims of Group **I and II** satisfy the unity of invention requirement, since they share a common technical feature--*a method for monitoring cell differentiation comprising cells containing at least one recombinant nucleic acid molecule comprising a reporter gene encoding a product that is secreted upon cell* -- that is a contribution over the prior art.

In addition, according to M.P.E.P. § 803: "If the search and examination of an entire application can be made without serious burden, the examiner must examine it on the merits, even though it includes claims to independent or distinct inventions." Applicants respectfully submit, as Groups **I and II** are clearly related, searching these groups together would not place a serious burden on the examiner within the meaning of M.P.E.P § 803. In view of the comments

presented above, Applicant respectfully requests reconsideration and withdrawal of the restriction requirement as it may apply to Groups **I and II**.

The Examiner has also requested election of species should Group **I** be elected. Applicants hereby provisionally elect the species: (a) embryonic stem cells; (b) cardiac cells: and (c) secreted alkaline phosphatase (SEAP). This election is made **without traverse**.

It is not believed that extensions of time are required, beyond those that may otherwise be provided for in accompanying documents. However, if additional extensions of time are necessary to prevent abandonment of this application, then such extensions of time are hereby petitioned under 37 C.F.R. § 1.136(a), and any fees required therefor are hereby authorized to be charged to our Deposit Account No. 19-0036.

Respectfully submitted,

STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.

Paul A. Calvo
Attorney for Applicants
Registration No. 57,913

Date: 7/22/10

1100 New York Avenue, N.W.
Washington, D.C. 20005-3934
(202) 371-2600

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